

WHAT IS CLAIMED IS:

1. A method of processing secondary fiber to remove high density stickies which have a density generally greater than the fiber which comprises processing a feed stream to generate a rejects stream enriched in high density stickies and treating  
5 the rejects stream enriched in high density stickies with a flotation stage to generate an intermediate flotation purified stream with a reduced high density stickies content.
2. The method according to Claim 1, wherein the feed stream is processed by way of  
10 a centrifugal separation technique to generate the rejects stream enriched in high density stickies.
3. The method according to Claim 2, wherein said feed stream is fed to a bank of hydrocyclones which generate the rejects stream enriched in high density stickies.  
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4. The method according to Claim 1, wherein said high density stickies have a characteristic area of less than about  $0.5 \text{ mm}^2$ .
5. The method according to Claim 4, wherein said high density stickies have a  
20 characteristic area of less than about  $0.3 \text{ mm}^2$ .
6. The method according to Claim 1, wherein the flotation stage is effective to remove at least about 40 percent of the high density stickies present in the rejects stream enriched in high density stickies.  
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7. The method according to Claim 6, wherein the flotation stage is effective to remove at least about 50 percent of the high density stickies present in the rejects stream enriched in high density stickies.

8. The method according to Claim 1, wherein said high density stickies are derived from pressure sensitive adhesives.
9. A method of thin stock processing secondary fiber to remove high density stickies having a density generally greater than the fiber comprising:
  - (a) processing a feed thin stock stream at a consistency of less than about 2.5% to generate a thin stock accepts stream and a thin stock rejects stream, said thin stock rejects stream being enriched in high density stickies; and
  - (b) treating the thin stock rejects stream enriched in high density stickies in a flotation stage to generate an intermediate flotation purified stream.
10. The method according to Claim 1, wherein the feed thin stock stream is processed by way of a centrifugal separation technique to generate the thin stock rejects stream enriched in high density stickies.
11. The method according to Claim 10, wherein said feed thin stock stream is fed to a bank of hydrocyclones which generate the thin stock rejects stream enriched in high density stickies.
12. The method according to Claim 11, wherein said feed thin stock stream is processed at a consistency of less than about 1% to generate the thin stock rejects stream.
13. The method according to Claim 12, wherein said feed thin stock stream has a consistency of from about 0.3% to about 0.9%.

14. The method according to Claim 13, wherein said feed thin stock stream has a consistency of from about 0.4% to about 0.7%
- 5 15. The method according to Claim 12, wherein the stickies are derived from pressure sensitive adhesives.
16. The method according to Claim 12, wherein at least about 40 percent of the stickies present in said thin stock rejects stream are removed by way of step (b).
- 10 17. The method according to Claim 12, wherein at least about 50 percent of the stickies present in said thin stock rejects stream are removed by way of step (b).
18. The method according to Claim 12, wherein said high density stickies have a
- 15 characteristic area of less than about  $0.5 \text{ mm}^2$ .
19. The method according to Claim 18, wherein said high density stickies have a characteristic area of less than about  $0.3 \text{ mm}^2$ .
- 20 20. A method of processing papermaking fibers with a multistage array of forward cleaners including a plurality of centrifugal cleaners configured to generate accepts streams and rejects streams which concentrate hydrophobic contaminants, said method comprising:
  - 25 (a) feeding a first aqueous feed stream including papermaking fibers to a first stage bank of centrifugal cleaners of said multistage array;
  - (b) generating a first accepts aqueous stream and a first rejects aqueous stream in said first stage bank of centrifugal cleaners, said first aqueous rejects

stream being enriched in heavy hydrophobic contaminants with respect to said first aqueous feed stream;

(c) supplying said first rejects aqueous stream to a flotation stage;

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(d) treating said first rejects aqueous stream in said flotation stage to remove hydrophobic waste from said first aqueous rejects stream and produce an intermediate aqueous purified feed stream;

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(e) feeding said aqueous purified intermediate feed stream to a second stage bank of centrifugal cleaners of said multistage array, said second centrifugal cleaner being configured to generate a second accepts aqueous stream; and

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(f) combining said first accepts aqueous stream with said second accepts aqueous stream to form a combined accepts stream.

21. The method according to Claim 20, further comprising the step of thickening said combined accepts stream.

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22. The method according to Claim 20, wherein said first aqueous feed stream has a consistency of less than about 1%.

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23. The method according to Claim 20, wherein said first aqueous feed stream has a consistency of from about 0.3% to about 0.9%.

24. The method according to Claim 23, wherein said first aqueous feed stream has a consistency of from about 0.4% to about 0.7%.

25. The method according to Claim 20, wherein said multistage array of forward cleaners comprises at least 3 banks of centrifugal cleaners.
- 5 26. The method according to Claim 20, wherein the hydrophobic contaminants removed from said first aqueous rejects stream by said flotation stage includes an ink composition.
- 10 27. The method according to Claim 26, wherein said ink composition is a toner ink composition.
28. The method according to Claim 27, wherein the hydrophobic contaminants removed from said first aqueous rejects stream by said flotation stage comprises an ink composition and stickies.
- 15 29. The method according to Claim 28, wherein said ink composition comprises a toner ink composition and said stickies comprise stickies derived from pressure sensitive adhesives.
- 20 30. A method of thin stock processing of secondary fiber to remove contaminants comprising:
- 25 (a) screening a first aqueous stream including secondary papermaking fibers having a consistency of less than about 2.5% in a screening device with openings having a screening dimension of less than about 10 mils to generate a screened accepts aqueous stream;
- (b) feeding said screened accepts aqueous stream to a multistage array of centrifugal cleaners configured to generate centrifugal cleaner accepts streams and centrifugal cleaner rejects stream which concentrate heavy

streams and centrifugal cleaner rejects stream which concentrate heavy hydrophobic contaminants, the rejects stream of at least one cleaner being fed to another centrifugal cleaner; and

- 5 (c) processing at least one centrifugal cleaner rejects stream of a centrifugal cleaner of said multistage array with a flotation stage to remove hydrophobic contaminants, said flotation stage thereby generating a flotation purified stream having a reduced hydrophobic contaminants content.

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31. The method according to Claim 30, wherein said first aqueous stream has a consistency of from about 0.3% to about 0.9%.

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32. The method according to Claim 31, wherein said first aqueous stream has a consistency of from about 0.4% to about 0.7%.

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33. The method according to Claim 30, wherein the hydrophobic contaminants removed from said first aqueous rejects stream by said flotation stage includes an ink composition.

34. The method according to Claim 30, wherein said ink composition is a toner ink composition.

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35. The method according to Claim 30, wherein the hydrophobic contaminants removed from said first aqueous rejects stream by said flotation stage comprises stickies.

36. The method according to Claim 30, wherein the hydrophobic contaminants removed from said first aqueous rejects stream by said flotation stage comprises an ink composition and stickies.
- 5 37. The method according to Claim 36, wherein said ink composition comprises a toner ink composition and said stickies comprise stickies derived from pressure sensitive adhesives.

36. The method according to Claim 30, wherein the hydrophobic contaminants removed from said first aqueous rejects stream by said flotation stage comprises an ink composition and stickies.

5 37. The method according to Claim 36, wherein said ink composition comprises a toner ink composition and said stickies comprise stickies derived from pressure sensitive adhesives.